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10/791,428

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LEE, CYNTHIA K

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/791,428
Filing Date: March 02, 2004
Appellant(s): WHEAT ET AL.

Michael Wiggins
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/11/2010 appealing from the Office action mailed 12/14/2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 23, 24, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mufford (US 6186254).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Nakanishi (US 6592741).

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Wells (US 2004/0185316) and Ballentine (US 2002/0192467).

Claims 27, 28, 30-34, 47-53 are allowable.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 6186254	Mufford	02-2001
US 6592741	Nakanishi	07-2003
US 2004/0185316	Wells	09-2004
US 2002/0192467	Ballentine	12-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23, 24, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mufford (US 6186254).

Refer to Fig. 1. Mufford discloses a fuel cell system comprising a fuel cell stack (30), an air supply (160), a water supply (175), a hydrogen supply (145), a heater (70) connected to an output of said stack to warm the stack and water supply and is external to the stack.

The heater is a resistor (4:23) (applicant's claim 24).

The hydrogen supply system 145 and oxidant (in the illustrated embodiment the oxidant is air) supply system 160 are under the control of PLC 250 (8:44-47). The controller necessarily controls the hydrogen and air supply to power the heater to warm the stack because the heater is powered by the fuel cell.

In operation, temperature sensor 255 provides the primary indicator of operating temperature of the fuel cell stack 30. The temperature sensed by temperature sensor 255 is used by the programmable logic controller 250 to determine the amount of heating or cooling of the cooling medium that is required to maintain the temperature of the fuel cell stack in its optimum operating range (7:33-35) (applicant's claim 26).

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Regarding the limitation "when the vehicle is not running", the Examiner notes that starting the fuel cell is not synonymous to starting the motor, and thus the fuel cell is capable of heating the heater with or without the vehicle motor running.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Nakanishi (US 6592741).

Mufford discloses all the elements of claim 23 and are incorporated herein.

Mufford does not disclose the element of claim 25. Nakanishi teaches a hydrogen reactor 23 provided with a hydrogen pressure sensor 11. Based on a value detected by the hydrogen pressure sensor 11, the amount of hydrogen produced in the reactor 23 can be detected. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a hydrogen pressure sensor and connect it to the controller of Mufford for the benefit of being able to know the amount of hydrogen on hand.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Wells (US 2004/0185316) and Ballentine (US 2002/0192467).

Mufford discloses all the elements of claim 23 and are incorporated herein. Mufford does not disclose an ambient temperature sensor. Wells teaches an ambient temperature sensor to monitor the ambient air temperature surrounding the fuel cell system [0062]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an ambient temperature sensor to monitor the ambient air temperature surrounding the fuel cell, as taught by Wells.

Mufford does not disclose a water tank sensor. Mufford discloses a water tank and a coolant path supplied by the water in the water tank (6:14-15). Mufford discloses a temperature sensor of the cooling medium 255 (fig 1 and 15-20). Ballentine teaches a water temperature sensor [0059]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a water temperature sensor to the system of Mufford for the benefit of being able to detect the water temperature to better control the temperature of the cooling medium.

(10) Response to Argument

Applicant argues that Mufford only describes operating a fuel cell for warming while the vehicle of Mufford is running. For example, Mufford states that "[f]uel cell power may be advantageously used to power the resistor soon after start-up" (See

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column 4, lines 39-40). Mufford also states that fuel cell power may be used "**during operation . . . especially when the motor vehicle is operated** in cool ambient temperatures." (See column 4, lines 42-46) (emphasis added). Appellants note, however, that Mufford is **silent** as to the fuel cell 30 powering the resistive heater of Mufford while the vehicle is not running (emphasis in original). Pg. 11 and 12 of Appeal Brief.

Regarding the limitation "when the vehicle is not running", Mufford states that "Fuel cell power may be advantageously used to power the resistor soon after start-up to bring the fuel cell stack within the preferred operating temperature range and during operation to improve fuel cell performance..." (4:39-41).

The Examiner notes that start-up of the fuel cell is not synonymous to starting the motor. The start-up of Mufford's fuel cell does not require the vehicle to be running, and thus the fuel cell is **capable of** operating (and thus heating the heater) with or without the vehicle motor running.

*The Applicant argues that the limitation of controlling a hydrogen supply and an air supply to power a heater to warm a fuel cell stack and a water supply while a vehicle is not running is a **functional limitation** of the controller of claim 23 - not an intended or desired use. M.P.E.P. § 2173.05(g) expressly states that "there is nothing inherently wrong with defining some part of an invention in functional terms. Applicant asserts that M.P.E.P. § 2173.05(g) also states that "[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a*

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person of ordinary skill in the pertinent art in the context in which it is used." Appellants respectfully submit that one of ordinary skill in the art would understand the functional limitations of claim 23 impart structural limitations upon the controller of claim 23. More specifically, the structure of the controller of claim 23 is such that the controller controls a hydrogen supply and an air supply to power a heater to warm a fuel cell stack and a water supply while a vehicle is not running. The Examiner's refusal to afford the limitations of claim 23 any weight is therefore improper. Pgs 13 and 14 of Appeal Brief.

In response, the Examiner notes that the instant claims are apparatus claims, **not** method claims. It has been held by the courts that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (BdPatApp & Inter 1987). See MPEP 2115.

Mufford states that "Fuel cell power may be advantageously used to power the resistor soon after start-up to bring the fuel cell stack within the preferred operating temperature range and during operation to improve fuel cell performance..." (4:39-41). The start-up of Mufford's fuel cell does not require the vehicle to be running, and thus the fuel cell is **capable of** operating (and thus heating the heater) with or without the vehicle motor running.

Appellants again note that the fact that a certain characteristic simply may occur or be present in a prior art reference is not sufficient to establish inherency of that characteristic, in re Rijckaert, 28 USPQ.2d 1955, 1957 (Fed. Cir. 1993) (emphasis added). In other words, the fact that a reference may be capable of performing a claim limitation does not establish that the reference actual performs the claim limitation. In this case, as acknowledged by the Examiner, Mufford teaches operating the fuel cell stack of Mufford while the vehicle of Mufford is running. Pg 14 of the Appeal Brief.

In response, the Examiner notes that although Mufford teaches operating the fuel cell stack of Mufford while the vehicle of Mufford is running, Mufford's fuel cell is **capable of** heating the heater, and thus operating the fuel cell, while the vehicle is not running because Mufford states that "Fuel cell power may be advantageously used to power the resistor soon after start-up to bring the fuel cell stack within the preferred operating temperature range and during operation to improve fuel cell performance..." (4:39-41). The start-up of Mufford's fuel cell does not require the vehicle to be running, and thus the fuel cell is **capable of** operating (and thus heating the heater) with or without the vehicle motor running.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Cynthia Lee/

Examiner, Art Unit 1795

Conferees:

/PATRICK RYAN/

Supervisory Patent Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795